

# Utah Department of Environmental Quality Division of Solid and Hazardous Waste



October 2000

## HEALTH RISK ASSESSMENT PROTOCOL

at the Deseret Chemical Depot, Utah

### What is the health risk assessment protocol?

The Division of Solid and Hazardous Waste (Division) is updating the health risk assessment for the Deseret Chemical Depot<sup>1,2</sup>. The *Human Health Risk Assessment Protocol* is a detailed description of proposed methods and assumptions that will be used to determine if emissions from burning chemical warfare agents<sup>3</sup> are safe.

All emissions from Deseret Chemical Depot that are regulated by the Resource Conservation and Recovery Act (RCRA) are considered. The two main sources of emissions at Deseret Chemical Depot are the Tooele Chemical Agent Disposal Facility (TOCDF<sup>4</sup>) and the Chemical Agent Munitions Disposal System (CAMDS<sup>5</sup>).

### What is the schedule?

The Division requested comments on the proposed approach. Based on the comments received, the protocol may be revised. Any revisions are documented in the final draft of the protocol.

The health risk assessment is then prepared in accordance with the methods presented in the protocol. The results of the health risk

assessment are anticipated to be available within three months of the final draft of the protocol. The Division will again request comments on the health risk assessment. Risk assessment updates will be conducted periodically by the Division<sup>2</sup>.

### What are some of the main differences from the previous health risk assessment?

Planned changes are based on a better understanding of the processes at the TOCDF and CAMDS and updated guidance for performing hazardous waste combustion risk assessments from the EPA (Environmental Protection Agency). The changes are summarized in the following sections.

**Emissions.** The potential health risks for each chemical agent (GB, VX, and mustard) campaign will be individually calculated. The sum of the health risks from each individual campaign is the total risk.

**TOCDF Emissions.** Emissions data<sup>6</sup> for the TOCDF furnaces (two liquid incinerators, deactivation furnace, metal parts furnace), the HVAC (heating ventilation, and air conditioning), and the brine reduction

area are available for the GB campaign.

Emissions data will be collected for VX and mustard munitions at the start of their campaign. Until this data is available, the emissions from the processing of VX and mustard munitions will be estimated using data and extrapolations from the TOCDF GB trial burns, Johnston Atoll Chemical Agent Disposal Facility (JACADS), and CAMDS.

The TOCDF dunnage incinerator is not included in the health risk protocol because the Army does not intend to operate the dunnage incinerator.

The duration of emissions (up to 13 years) is based on how long the TOCDF could operate and the operating permit<sup>7</sup> renewal. This information was unavailable when the *Screening Risk Assessment* was prepared.

**CAMDS Emissions.** For CAMDS, three furnaces are evaluated compared to the single furnace in the *Screening Risk Assessment*. Trial burns are planned for the deactivation furnace, liquid incinerator, and metal parts furnace. Until the trial burn data are available, the emissions are estimated from CAMDS test burns, TOCDF GB trial burns, and JACADS

trial burns. Emissions from the CAMDS HVAC are also evaluated.

**Open Burn/Open Detonation (OB/OD) Emissions.** Open burn or open detonation emissions are not evaluated because the Army does not intend to conduct OB/OD during chemical demilitarization.

**USEPA Guidance.** Since release of the *Screening Risk Assessment* in 1996, the USEPA updated their guidance for conducting hazardous waste combustion risk assessments. The guidance has not been finalized but is recommended by USEPA for interim use. The Division will follow this guidance in preparation of the health risk assessment.

**Exposure.** The Division has included all exposure pathways and receptors (people who might be exposed) recommended by the USEPA. Additional receptors were added and some of the USEPA defaults are modified based on actual conditions in the vicinity of Deseret Chemical Depot. Exposure pathways that are currently incomplete, but could be complete at some time in the future, are evaluated as potential future exposure pathways (for instance, consumption of potentially contaminated homegrown dairy products). The following exposure pathways will be included in the health risk assessment:

- (1) Adult and child residents are assumed to be exposed to contaminated air, soil, and drinking water.
- (2) Adult and child ranchers are assumed to be exposed to contaminated air, soil, drinking water, homegrown vegetables, homegrown dairy, and homegrown beef, pork, and chicken.
- (3) Depot workers are assumed to be exposed to contaminated air and soil.

- (4) Recreational adults and children are assumed to be exposed to contaminated fish, and contaminated water during contact sports such as windsurfing.
- (5) In addition to chronic exposures (up to 40 years), acute exposures (one-hour) are also evaluated.
- (6) Infants of residents and ranchers are assumed to be exposed to dioxins<sup>8</sup> in mother's milk.

**Toxicity.** The most recent USEPA reference doses (safe dose), reference concentrations (safe air concentration), and cancer potencies will be used. The USEPA has not published reference doses for chemical agents.

Since the preparation of the *Screening Risk Assessment*, the Army has proposed reference doses for GB, VX, and mustard, and a new cancer potency for mustard. The Centers for Disease Control are reviewing the Army's new proposed General Population Limits (safe air concentration) for GB and VX. The most recent values available will be used in the health risk assessment.

### Where can I get a copy of the protocol?

The protocol and fact sheets are available at the Divisions offices or from the chemical demilitarization section homepage under Current Events.

### Additional Information :

This fact sheet is a summary. If you would like more detailed information or have questions please contact:

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<sup>1</sup> See Health Risk Assessment Fact Sheet

<sup>2</sup> See Health Risk Assessment Update Fact Sheet

<sup>3</sup> See Chemical Agent Fact Sheet

<sup>4</sup> See Tooele Chemical Agent Disposal Fact Sheet

<sup>5</sup> See Chemical Agent Munitions Disposal System Fact Sheet

<sup>6</sup> See Test Burn Fact Sheet

<sup>7</sup> See Permit Compliance Fact Sheet

<sup>8</sup> See Dioxins Fact Sheet